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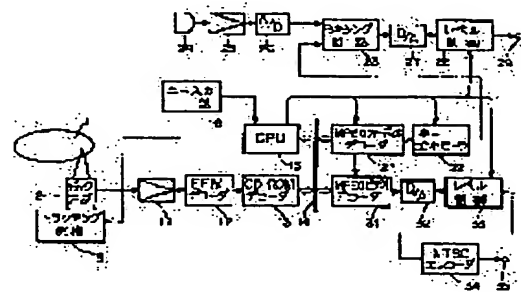
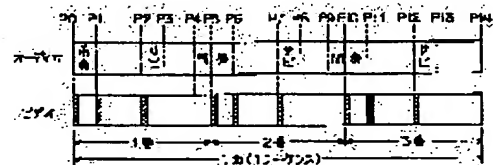
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## (54) RECORDING METHOD FOR AUDIO INFORMATION AND MOVING PICTURE INFORMATION AND ITS RECORDING MEDIUM

## (57)Abstract:

**PURPOSE:** To easily perform the audio and video reproduction of a desired part in a sequence by recording the sequence of a required format provided with access point information or the like and reproducing it.

**CONSTITUTION:** The sequence specified in a key input part 16 is read from a disk 1 and processed in a CD-ROM decoder 13 and moving picture video signals are outputted through an MPEG video decoder 31 and an NTSC encoder 34, etc. Simultaneously, audio data are outputted from a mixing circuit 23 along with audio from a microphone 24 through an MFEG audio decoder 21 or the like. One sequence recorded in the disk 1 is provided with the audio information including a prelude and a climax part, etc., and access points indicating the start of a partial sequence or the like and required compressed moving picture information is recorded for respective sub-sequences corresponding to the partial sequences of the audio. When the access points are used, the audio and video reproduction of the desired part in the sequence is performed.



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CLAIMS

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[Claim(s)]

[Claim 1] While recording 1 or the audio information on two or more sequences, and the dynamic-image information relevant to this on a record medium It is the approach of recording the information about the recording information of the record medium concerned on the record area where it was set on the record medium. Said dynamic-image information While compressing and recording all the image information of one frame about the image of proper spacing, about images other than said image While recording the information on the access point of the partial sequence in said sequence on the record area where it was set on said record medium in the record approach which compresses the change information on the image information of the frame of order, and is recorded By the point used as the playback initiation of said access points, it is the record approach of of the audio information and video information which were recorded as said dynamic-image information becomes the record location of the image data on which said all image information of one frame was compressed into, and it was recorded.

[Claim 2] The record approach of of the audio information according to claim 1 and the video information which also recorded the information on the termination point on the record area where it was set on said record medium as information on the access point of the partial sequence in said sequence in addition to the information on the initiation point of said partial sequence.

[Claim 3] 1 or the audio information on two or more sequences, and the dynamic-image information relevant to this, The information about the recording information recorded on the record area appointed beforehand is recorded. And said dynamic-image information While all the image information of one frame is compressed and the image of proper spacing is recorded, images other than said image While being the record medium with which the change information on the image information of the frame of order is compressed and recorded and recording the information on the access point of the partial sequence in one sequence on said record area appointed beforehand In said access point, said dynamic-image information is the record medium made into the record location of the image data on which said all image information of one frame was compressed into, and it was recorded.

[Claim 4] The record medium according to claim 3 with which the information on the termination point was recorded on said record area appointed beforehand as an access point of the partial sequence in said sequence in addition to the information on the initiation point of said partial sequence.

[Claim 5] While recording 1 or the audio information on two or more sequences, and the dynamic-image information relevant to this on a record medium It is the approach of recording the information about the recording information of the record medium concerned on the record area where it was set on the record medium. Said dynamic-image information While compressing and recording all the image information of one frame about the image of proper spacing, about images other than said image In the record approach which compresses the information on a motion of the image information of the frame of order, and is recorded While recording the information about the record location of image data where said all image information of one frame was compressed and recorded on the record area where it was set on said record medium The record approach of of the audio information and video information which recorded the information on whether the point concerned corresponds to the record location of which said image data as the point used as the playback initiation of the access points of the partial sequence in said sequence.

[Claim 6] The record approach of claim 1 which recorded the attribute information on what kind of output control the point concerned performs on the access point of said partial sequence collectively about the audio signal and the video signal in the regenerative apparatus, audio information according to claim 2 or 5, and video information.

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the record medium recorded like for example, the karaoke animation CD (compact disk) by the approach of recording audio information and dynamic-image information on a record medium, and this record approach.

[0002]

[Description of the Prior Art] There are some which are called a video CD as one of the specification of CD-ROM. On this video CD, dynamic-image information is also recorded with audio information, and it is put in practical use as the so-called object for karaoke.

[0003] In this video CD, compression coding is carried out by MPEG(Moving Picture ExpertGroup) 1 specification, and the dynamic-image signal and the audio signal are recorded.

[0004] That is, an audio signal is made into a digital signal, is compressed by the compression coding method using an acoustic-sense mental property, and is recorded. Moreover, a dynamic-image signal is made into a digital signal, one screen is blocked, a discrete cosine transform (DCT) is carried out for every block, the amount of signs decreases according to the change condition of an image, and the sign after this DCT is recorded as a sign with the higher frequency of occurrence can assign a short sign and the amount of signs is decreased as a whole by VLC (Variable Length Code).

[0005] As the difference of the screen which predicted change, and an actual screen is further taken out from the screen of the past or the future in the case of dynamic-image data and this difference and prediction variation are recorded on it, he is trying to compress the amount of data into it further. However, only by data and prediction variation of difference, since a recovery image is not obtained, without referring to other images, the data of the image of one screen (one frame) used as those criteria carry out compression coding as it is, and record. Thus, the image used as the criteria which carried out compression coding, without referring to other images is called I picture. And other images which can be called change information over this I picture are called P picture and B picture.

[0006] On the disk, an audio signal and a dynamic-image signal are the sector units of CD-ROM specification, and as shown in drawing 8 , they are recorded. That is, in drawing 8 , the sector (henceforth a video sector) of the dynamic-image data with which compression coding of the V was carried out, and A are the sectors (henceforth an audio sector) of the audio data by which compression coding was carried out. Since there is less amount of data than dynamic-image data, audio data are recorded on two or more video sectors at a rate of one audio sector like drawing 8 .

[0007] The information on distinction of an audio sector or a video sector, the information on the absolute time on a disk, and the information on the time amount which outputs a dynamic image or a sound at the time of playback (correspondence information on the playback timing of a dynamic image and a sound) are recorded on each sector, and each music and the dynamic image relevant to it are reproduced in a regenerative apparatus based on such information so that it may explain to a detail later.

[0008] By the way, if I picture is missing so that clearly from explanation of the compression coding method of the dynamic-image data mentioned above, a right recovery image will not be obtained. for this reason, a certain truck (one truck — one music — correspondence; — suppose that a series of events like one music are called one sequence.) If the location of I picture is not known when carrying out playback from from while being below the same, it is difficult to obtain a right playback image.

[0009] Although it is determined in the video CD format that one is surely recorded within for 2 seconds in order that I picture may maintain predetermined image quality, the information about the location of I picture is not recorded on a disk in the version 1.0 (Ver.1.0). For this reason, in a version 1.0, it was not easy for it to be made to perform playback from the middle of a certain truck.

[0010] In the version 1.1 (Ver.1.1) of a video CD format, the location in the middle of a truck (an entry point is called) which can carry out image reconstruction is hour-entry-ized in the area which records the information about the record data on the number of music on a disk, etc. and a disk, and is recorded on it. This entry point is the information on the location of I picture, is reproducing referring to this point, and makes image reconstruction possible also at the time of partial regeneration and rapid-traverse playback.

[0011]

[Problem(s) to be Solved by the Invention] By the way, although CD animation karaoke system based on the version

1.0 of the above video CD formats is realized, when the song program decreased as a TV program, the following demands are coming out from change of that it has been hard coming to memorize the whole music and the environment where the so-called appearance of a karaoke box and accounting of dues surround karaoke commercial scenes, such as shift to a time amount system from a music unit system, from a commercial scene to Karaoke CD. [0012] That is, I want to sing only the characteristic part of the music called the so-called rust in \*\* musical piece. \*\* I want to have wanted to sing only No. 1 of the musical pieces, or No. 2, or to have revalued the song by No. 2. \*\* I want to fast forward and omit the part which is unrelated to songs, such as an interlude part in a musical piece, and a knot (phrase) weak.

It is \*\*\*\*.

[0013] However, since there were no means to which a regenerative apparatus gets to know the location of the above specific partial sequences in the conventional case, a user needs to look for initiation and the termination point of a partial sequence, and it is necessary to operate a regenerative apparatus so that particular part playback and an omission of the above-mentioned \*\* - \*\* may be realized, and troublesome. In limiting the partial sequence location depending on music like [ in the case of reproducing only the part of rust especially ], it is necessary to operate it not only in the starting position of the partial sequence but in the location which the partial sequence ends, and actuation will become troublesome.

[0014] Moreover, like the above-mentioned \*\* - \*\*, as the above-mentioned was also carried out, since it was not recorded on a disk, when carrying out playback from the middle of a certain music, it was difficult [ the information about the location of I picture ] to reproduce the dynamic image relevant to it in the version 1.0 of a video CD format.

[0015] In the version 1.1 of a video CD format, as an entry point, since the location of I picture is known, although animation playback is possible, when starting playback from the specific part in a musical piece, it cannot specify even from the middle whether it is desirable to start playback from which entry point like [ in the above-mentioned \*\* - \*\* ].

[0016] It aims at offering the record medium which makes it possible to reproduce a dynamic image correctly from the suitable point according to that partial sequence, and the record approach to that record medium while it enables it for a regenerative apparatus to perform playback and an omission of that partial sequence easily as mentioned above, even if this invention is playback and an omission of one musical piece (sequence) of only an intermediate part (partial sequence).

[0017]

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, the record approach of of the audio information and dynamic-image information by invention of claim 1 While recording 1 or the audio information on two or more sequences, and the dynamic-image information relevant to this on a record medium It is the approach of recording the information about the recording information of the record medium concerned on the record area where it was set on the record medium. Dynamic-image information While the image of proper spacing compresses and records all the image information of one frame, images other than said image While recording the information on the access point of the partial sequence in said sequence on the record area where it was set on said record medium in the record approach which compresses the change information on the image information of the frame of order, and is recorded On the point used as the playback initiation of said access points, said dynamic-image information is characterized by making it record becoming the record location of image data where said all image information of one frame was compressed and recorded.

[0018] You may make it also record the information on the initiation point, and the information on the termination point on the record area where it was set on said record medium as information on the access point of the partial sequence in said sequence.

[0019]

[Function] In the record approach of this invention of the above configuration, while the information on the access point of the partial sequence in 1 sequence is recorded on the record area where it was set on the record medium, on the point which starts playback among this access point, it is recorded that dynamic-image information compresses and records all the image information of one frame. That is, I picture will be recorded if it is the case of a video CD. Therefore, if playback is started from this part while being able to perform partial regeneration easily using the access point of the partial sequence of said record area, not only audio information but dynamic-image information will be reproduced immediately.

[0020] Moreover, in this invention, since the termination point of a partial sequence is also recorded, it also becomes possible by referring to this termination point to extract only the part of the partial sequence from the initiation point of a partial sequence to the termination point, for example, the rust of music, and to reproduce.

[0021]

[Example] It explains taking the case of the case of the video CD which mentioned above hereafter one example of the record medium recorded by the record approach by this invention, and its record approach.

[0022] Before explaining the example of the record approach by this invention, a format of a video CD is explained. Drawing 2 is drawing for explaining the record format on a video CD. That is, a video CD has a lead-in groove truck at the head like the usual CD-ROM, as shown in drawing 2 , and the truck 1 - N, and the lead-out truck of data of N individual ( $N \leq 99$ ) follow this. And compression audio information and compression dynamic-image information are recorded on the truck 2 - Truck N of the 2nd henceforth among a truck 1 - Truck N. One truck each of a truck 2 - Truck N supports one music (one sequence) each, and can record N-1 music on a video CD.

[0023] Moreover, various kinds of information and data about the contents of the video CD are recorded on the 1st truck 1, and it is also described by this truck 1 that that video CD is a karaoke format.

[0024] Furthermore, as shown in drawing 2, karaoke BASIC information area, video CD information area, etc. are established in the truck 1. While basic information KARINFO.JP (for Japan) about the karaoke on the disk for every language according to the country where the disk concerned is used, KARINFO.US (for the U.S.), and — are contained, KARINFO.BIH the number of the basic information for these each country, the number of music on the disk concerned, etc. are described to be is contained in karaoke BASIC information area.

[0025] As basic information about the karaoke prepared for each country, the data table of the karaoke for  $n = (N-1)$  music is recorded. This data table is called a "sequence item table", and is constituted independently for every one music. That is, corresponding to the music of each karaoke, the sequence item table SIT1 of  $n = (N-1)$  individual — SITn are prepared. The data table SIT0 about the video CD concerned called the disk item table other than the table for every music of these is formed. The total of a disk title and the number of music, a disk catalog number, etc. are recorded on the disk item table SIT0.

[0026] The sequence item table SITi ( $i=1-(N-1)$ ) has 64 item columns. And although there are an indispensable thing and a thing of arbitration in the item, the die length of the contents in each item column is made adjustable. Therefore, the information GL which shows the die length of the table is formed in the head of the sequence item table SITi. And the data of each item are called an item packet and each item packet becomes each item number (item number) INo. from Information IL and the contents ID of the item of the die length of the item (text data).

[0027] Drawing 3 shows the structure of the table SITi. For example, the item number 9 is made into the item column of a music name, and let the data which the contents show a music name be text data. Or an item number 18 is made into the item column of words, and words are held in the form of text data. Moreover, the item column of the item numbers 22-31 is wide opened by the manufacturer, and a manufacturer can use it, defining it freely.

[0028] In addition, at the version 1.0 of a video CD, as mentioned above, the location of I picture of the compression dynamic-image data is not prepared as information, but by the version 1.1, the entry table which expressed and table-ized this for the information on the time amount on a disk is prepared in the video CD information area of the 1st truck 1 by making the record location of predetermined I picture into an entry point so that it can be used for rapid-traverse playback or playback from the middle. This entry table is prepared for every truck, and, as for an entry point, even a maximum of 98 points are recorded on per [ one truck (one sequence) ] one by one. As for the hour entry of an entry point, the time amount from the head of each truck is used.

[0029] Next, the DS of a video sector and an audio sector is shown in drawing 4. As shown in drawing 4, 1 sector has the structure where a header and subheader were added before the data constellation called 2324 bytes of pack. The information on the absolute time from the most inner circumference to the sector concerned is expressed with a part, a second, and a frame to a header, and is recorded on it. Moreover, to subheader, the sector concerned can recognize a video sector and an audio sector from this submode information including submode information.

[0030] The contents of the pack differ a little with a video sector and an audio sector. That is, a pack header common to a video sector and an audio sector is prepared in the head of a pack. "A pack start" of a pack header is data in which it is shown that a pack begins from the location, "SCR (System Code Reference)" is data in which the time amount which reads packed data is shown, and a "MUX rate" shows the transfer rate of video compressed data and audio compressed data.

[0031] The contents of the packet header of the parts of the packet except the pack header of the packed data differ with a video sector and an audio sector. "A packet start" of the packet headers is data in which it is shown that a packet begins from the location, and shows whether "ID" is whether a packet is a video packet and an audio packet. "Packet length" shows the die length of packet data, and "buffer size" is information which directs buffer size required for decoding.

[0032] Moreover, "PTS (Present Time Stamps)" shows the time amount to which a regenerative apparatus outputs an animation or a sound. A regenerative apparatus recognizes which image it makes it correspond to be outputted to the output timing of a certain sound by referring to PTS.

[0033] This "PTS" is as common as a video sector and an audio sector, and a packet header records compression audio data for it after this "PTS" with an audio sector. On the other hand, in the case of a video sector, "DTS (Decode Time Stamp)" the time amount which sends data to a decoder further is described to be is prepared after "PTS", and a compression video data is recorded after that.

[0034] Next, the example of the record approach of this invention is explained.

[0035] [the case of the video CD specification version 1.0] — in this case, as mentioned above, the information on an entry point is not recorded on a video CD. Then, the information on the access point of the initiation point of a partial sequence and the termination point is recorded on the item column which the manufacturer of the item numbers 22-31 of the sequence item tables of the karaoke BASIC information area of the 1st truck 1 mentioned above can use, this example's defining freely. The information on the access point of these partial sequence is recorded as a hour entry from the location of the head of each truck. In addition, the time amount of the head location of each truck is described by the truck 1. Or it can ask from the data described by the truck 1.

[0036] Moreover, in this example, in addition to the hour entry, it is that initiation or the termination point, and the attribute information on what kind of control is made to perform is also doubled and recorded about the access point of a partial sequence.

[0037] Furthermore, among the access points of a partial sequence, in the access point which starts playback from the point, dynamic-image data are made to record by controlling a recording device so that I picture may surely be

recorded.

[0038] Drawing 1 is drawing showing the relation between the access point of a partial sequence, and the audio data and the video data about one certain music (one sequence). In the video data of drawing 1, the part which attached the slash shows the part of I picture. In addition, I picture shows only I picture of the location which is related to explanation of this invention for convenience of explanation by drawing 1, although one piece is recorded as surely existing within 2-second spacing in addition to the location of illustration as the above-mentioned was also carried out.

[0039] In drawing 1, P0 is the head point of music and I picture is recorded as a video data corresponding to this. Similarly, P5 and P10 are the head points of 2 chorus eye (No. 2 of music), and 3 chorus eye (No. 3 of music), and I picture is recorded also on this location as a video data. This is the point which serves as playback initiation at the time of the mode of the partial sequence of playback of only the 1st chorus, the 2nd chorus, or the 3rd chorus.

[0040] the point whose prelude of the head of 1 chorus eye ends P1 — it is — this prelude — the termination point P1 is used as the point used as playback initiation, when omitting and carrying out partial regeneration of the prelude. For this reason, I picture is recorded as a video data corresponding to the audio data of this point P1.

[0041] P2, P7, and P12 are the initiation points of the part of the rust of 1 chorus eye, 2 chorus eye, and 3 chorus eye, respectively, and P3, P8, and P13 are the termination points of the part of each rust. I picture is recorded as a video data corresponding to the audio data of the initiation point of the part of rust. Therefore, if playback is started from the part of rust, a dynamic image will become refreshable correctly.

[0042] P4 and P9 are the initiation points of the interlude of 1 chorus eye to 2 chorus eye, and the interlude of 2 chorus eye to 3 chorus eye, and P6 and P11 are the termination points of the interlude. These points are used when omitting an interlude. The termination point of an interlude is an access point which serves as playback initiation at the time of the mode of an interlude omission, and I picture is recorded as a video data corresponding to the audio data of this point. Therefore, it becomes possible to reproduce correctly the part of the phrase after the omitted interlude to a dynamic image.

[0043] As mentioned above, in the case of this example, the information on each aforementioned access point for playback of a partial sequence is recorded by the sequence item table as information on the absolute time on a disk.

[0044] Drawing 5 shows the example of the item packet used for assignment of the location of the access point of the partial sequence of the sequence item tables, and an attribute. An item number is either of the item numbers 22-31 which a manufacturer can use, defining freely, as mentioned above. In the following explanation, the item packet of the item number 22 shall be made into the access points of a partial sequence, for example.

[0045] It is indicated as text data which used the character code defined by KARINFO.BIH for the data DI of the contents of an item of drawing 5. In this example, an ASCII code is used for the value of data as a character code supposing Shift JIS.

[0046] In the contents data DI of an item of drawing 5, the information for control at the time of partial regeneration is shown, "E" is event data (2 bytes) and "EL" is [ "EH" is the high order bit (1 byte), and ] the lower bit (1 byte). Moreover, "M", "S", and "F" show the hour entry of a "minute", a "second", and a "frame", and these show the location of the access point of a partial sequence by time amount. The high order bit (1 byte) of them, "ML", "SL", and "floor line of "MH", "SH", and "FH"" are the lower bits (1 byte) of them. In this case, let a hour entry be a hour entry from the head location of the track of each music (sequence).

[0047] In the case of this example, as the high order bit EH of the event data E is shown in the table of drawing 6, the rust point in which it is shown that an access point is the part of rust, n-chorus point in which it is shown that it is the n-th chorus part of music direct the class of partial sequence to specify. Moreover, lower bit EL of event data is the point shown by the item packet of the item number 22, and is data for directing in what kind of mode it starts or ends.

[0048] In the case of this example, as shown in the table of drawing 6, in the access point specified by the item packet of the item number 22, it can respond to the code of lower bit EL of that event data, and the mode turned on and (initiation) turned off simply (termination) and the mode which is made to perform control of fade-in or fade-out only with an audio signal or a video signal both fade-in or fade-out, audio signal, and both video signal can be specified. In addition, in drawing 6, (H) shows the hexadecimal display.

[0049] The data M, S, and F of the location of each points P0-P14 about said each music and every (it is 8 bytes with 2 bytes of data E, M, S, and F, respectively) 8 bytes of data E of the attribute are recorded by sequence about one access point in the data DI of the item packet of the item number 22 of each sequence item table.

[0050] In a regenerative apparatus, the rust point, n-chorus point, the interlude point, etc. can be discriminated from the high order bit EH of the event data E which are 1 byte of the head of a break and every 8 bytes of its data at a time about the data DI of the item number 22 at 8 bytes, and the C which performs what kind of control on the point can be recognized from lower bit EL of the event data E which are the following 1 byte. And the location of the point concerned can be known as a hour entry by the 8th cutting tools MH-floor line from the 3rd cutting tool of every 8 bytes of data.

[0051] As the mode which reproduces only the part of rust, a regenerative apparatus prepares "reproducing only rust", "reproducing only the n-th chorus", "an interlude omission", etc., and prepares the mode assignment key corresponding to it in the key input section. The key input which specifies said mode is only carried out, a regenerative apparatus searches said each point location automatically, and a user performs audio playback and video recovery.

[0052] Into one part of the item numbers 22-31 wide opened by the user among sequence item tables as mentioned above If the video CD on which the location data of the access point of said partial sequence and attribute data concerning the point further were recorded is used, it will set to a regenerative apparatus. By using the information on said sequence item table, the partial sequence of the video CD concerned can be reproduced easily, and, moreover, playback is performed from I picture location where a dynamic image is also suitable.

[0053] Drawing 7 is the block diagram of an example of the regenerative apparatus of a video CD explained above. That is, in the regenerative apparatus of the example of drawing 7, the signal currently recorded on this from the video CD 1 is reproduced, that regenerative signal is supplied to the EFM decoder circuit 12 through the playback amplifier 11, the signal with which processing of an EFM recovery, an error correction, etc. was performed, and this processing was performed is supplied to the CD-ROM decoder circuit 13, decoding of a sector unit is performed, and each signal is outputted by the optical pickup 2.

[0054] And the data of the 1st truck 1 are incorporated by the microcomputer 15 among the output signals of the CD-ROM decoder circuit 13 through a system bus (it consists of an address bus and a data bus) 14, and it is used for future playback control.

[0055] Moreover, the video signal, i.e., a luminance signal, of even if the data of the compression video signal of the output signals of the CD-ROM decoder circuit 13 are incorporated in the MPEG video decoder circuit 31, and two color-difference signals are decoded. And in the D/A converter circuit 32, D/A conversion of this decoded video signal is carried out to an analog signal, and this video signal by which D/A conversion was carried out is supplied to the level control electronics 33 for fade-in or fade-out. And the output video signal of this level control electronics 33 is supplied to the NTSC encoder circuit 34, it is encoded by the color composite video signal of NTSC system, and this video signal is outputted to a terminal 35.

[0056] Moreover, the audio signal, i.e., the left of karaoke (performance), of even if the data of the audio signal of the output signals of the CD-ROM decoder circuit 13 are incorporated in the MPEG audio decoder circuit 21, and the audio signal of a right channel are decoded, and this decoded audio signal is supplied to the key control circuit 22.

[0057] Furthermore, in this example, the key input section 16 is formed and the output of this key input section 16 is supplied to a microcomputer 15. And the output of the control unit which adjusts the rate of the music of the key input section 16 is supplied to a microcomputer 15, and while the rotational speed and the decoder circuits 21 and 31 of a video CD 1 are controlled by the microcomputer 15 and the reproduction speed of a video signal and an audio signal is changed with it according to the output of the input section 15, in the key control circuit 22, change of the signal produced by modification of the rate is amended.

[0058] And the audio signal from the key control circuit 22 is supplied to a mixer circuit 23. Moreover, from a microphone 24, the audio signal of a singer's vocal is supplied to the A/D converter circuit 26, A/D conversion is carried out through amplifier 25, and the audio signal by which A/D conversion was carried out is supplied to a mixer circuit 23.

[0059] And in a mixer circuit 23, it considers as the audio signal by which the audio signal of karaoke and the audio signal of vocal were mixed, namely, karaoke was added to vocal, this audio signal is supplied to the D/A converter circuit 27, D/A conversion is carried out, this audio signal by which D/A conversion was carried out is supplied to the level control electronics 33 for fade-in or fade-out, and the audio signal by which the level control was carried out is outputted to an output terminal 29.

[0060] Furthermore, in either of the item numbers 22-31, and this example, the data about playback of the partial sequence described by the item number 22 are taken out from the data of the table SITi of the data of the 1st truck 1 incorporated by the microcomputer 15 in this case, and it is used for playback of the partial sequence in the mode specified from the key input section 16 from it.

[0061] The case where rust using the regenerative apparatus explained above and partial regeneration of a part is performed is explained. In this case, the information about the initiation point Ps and the termination point Pe of a rust part of the target music shall be recorded on the truck 1 by the video CD as data of the item number 22 of the sequence item table about the music of the purpose concerned.

[0062] and the contents ID of an item about now and Point Ps — [EH, EL, MH, ML, SH, SL, FH, floor line] = [60, 39, 30, 31, 32, 32, 31, 30]

the contents ID of an item come out, and are and concerning Point Pe — [EH, EL, MH, ML, SH, SL, FH, floor line] = [60, 31, 30, 31, 35, 32, 31, 35]

Suppose that it came out. The data of these points Ps and Pe are recorded on Data DI one by one.

[0063] It means the information on the partial regeneration of the above-mentioned example beginning from the specified music (sequence), i.e., the head of a truck, from the location after 1-minute progress [ 2 ten frame ] per second, and the rust point ending it by 15 frames for 5 seconds per minute, performing initiation by fade-in about an audio signal and a video signal, and performing closing by fade-out about an audio signal and a video signal.

[0064] When a user directs assignment of music, and the mode of playback of only rust, from the key input section 16 of the regenerative apparatus of drawing 7 a microcomputer 15 The high order bit EH of each event data is referred to among the data in every 8 bytes about two or more partial sequences of the data DI of the item number 22 of the sequence item table of the specified music concerned. The above-mentioned data in every 8 bytes about the rust point are found out, and the data of 8 bytes of each about these points Ps and Pe are written in buffer memory.

[0065] And a microcomputer 15 computes the location on the video CD 1 which should be accessed from the relative time amount from the head of the specified truck of music by "M" of the data of 8 bytes of first rust point



Ps, "S", and "F", controls the tracking control section 3, and it is made for the location of pickup 2 to turn into the playback location concerned. Moreover, a microcomputer 15 rusts from the lower bit "EL" of the event data E of the data about 8 bytes of found-out rust point Ps, distinguishes the actuation at the time of playback initiation, in the case of this example, controls level control electronics 28 and 33, and processes fade-in about an audio signal and a video signal to it.

[0066] Playback of a dynamic image is immediately started at the same time playback of the audio signal of the rust part of music is started, since the video data serves as I picture on the initiation point Ps of the rust concerned at this time as shown also in the points P2, P7, and P12 of drawing 1.

[0067] In this way, if the dynamic image of a rust part and audio playback start by processing of fade-in, a microcomputer 15 will compute playback elapsed time from the sub-code in the data of a CD-ROM sector structure, and the absolute time information in a header. And it supervises that collate the elapsed time and the data (from the 11th byte to the 16th byte) of "M" about the termination point Pe of the rust incorporated to buffer memory, "S", and "F", and a playback location reaches the termination point Pe of rust.

[0068] If a playback location reaches the termination point Pe, a microcomputer 15 will rust from the lower bit "EL" of the event data E about Point Pe, will distinguish the actuation at the time of playback termination, will control level control electronics 28 and 33 by this example based on this, and will process fade-out about an audio signal and a video signal.

[0069] By the above, a user can reproduce easily only the rust part of the music which only directs assignment of music, and the mode of playback of only rust, and he wishes from the key input section 16.

[0070] [the case of the version 1.1 of video CD specification] — also in this version 1.1, any one or the plurality of the item numbers 22-31 of a sequence item table of the karaoke BASIC information area of a truck 1 can be used, and a partial sequence as well as [completely] the case of a version 1.0 can be reproduced.

[0071] Moreover, in a version 1.1, as mentioned above, it is that by which the table of an entry point in which refreshable positional information (positional information on which I picture is recorded) was shown by time amount is recorded on video CD information area for every sequence from the middle (the hour entry to a maximum of 98 points per truck is recorded one by one), and partial regeneration can be specified using the information on this entry point.

[0072] Namely, as information about the partial regeneration recorded on the part of the item numbers 22-31, hour entries M, S, and F are unnecessary, attach an entry point and correspondence and should just record the event data E as an attribute of each entry point in this case. What is necessary is to be the same sequence as an entry point and just to describe the event data E of the attribute of each point as one data DI of the item numbers 22-31 as an approach of attaching correspondence, for example, although many things are considered.

[0073] Moreover, you may make it, as match initiation or the termination point of an entry point and a partial sequence with the information which specifies the entry point in the entry table about the sequence concerned (it specifies like what position) as one pair as data DI by using said event data E as the access point data of each partial sequence.

[0074] Also in this example, a location required for the partial regeneration of the I picture locations of an entry point, i.e., dynamic-image data, records the starting position of the starting position of the rust part of music, the termination location of an interlude, the 2nd chorus, and the 3rd chorus etc. with a recording device so that it may agree on the point required for the partial regeneration about music.

[0075] In addition, although positional information of the access point of a partial sequence was made into the hour entry from the head location of each truck, it is not restricted to this and you may make it the information on the absolute time on a disk and the hour entry of the playback print-out PTS used for it in the above example.

[0076]

[Effect of the Invention] As explained above, while recording positional information required for partial regeneration on a record medium according to this invention, since it records that dynamic-image data become what the image data of one frame used as the criteria of compression coding was compressed and recorded on on said record medium, in the location of the initiation point of the partial regeneration concerned, the record medium which can perform easily the audio playback and the video recovery of a part which he wishes in one sequence can offer.

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[Translation done.]

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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is drawing for explaining the record approach by this invention.

[Drawing 2] It is drawing for explaining a record format of a video CD.

[Drawing 3] It is drawing for explaining the data recorded on the track 1 of a video CD.

[Drawing 4] It is drawing for explaining the sector structure of a video CD.

[Drawing 5] It is drawing showing the example of the data recorded by this invention.

[Drawing 6] It is drawing for explaining the example of the attribute of the data recorded by this invention.

[Drawing 7] It is the block diagram of one example of the regenerative apparatus of the record medium recorded by this invention.

[Drawing 8] It is drawing for explaining the record condition of the audio signal on a video CD, and a video signal.

[Description of Notations]

1 Video CD

13 CD-ROM Decoder Circuit

15 Microcomputer

21 MPEG Audio Decoder Circuit

23 Mixing Circuit

28 Level Control Electronics

31 MPEG Video Decoder Circuit

33 Level Control Electronics

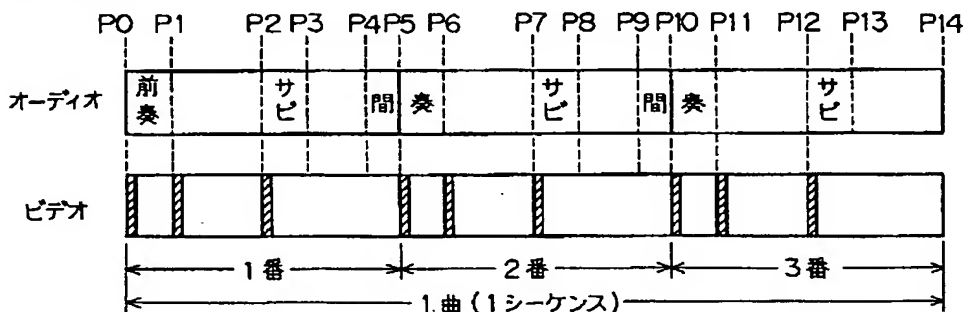
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**[Drawing 1]**



ビデオCDインフォメーションエリア

リードイン	トラック1	トラック2	-----	トラックN	リードアウト
-------	-------	-------	-------	-------	--------

カラオケパッセージインフォメーションエリア

KARINFO.BIH	KARINFO.JP	KARINFO.US	
-------------	------------	------------	--

グループ0	グループ1	-----	グループn
-------	-------	-------	-------

ディスクアイテム	シーケンスNo.1 アイテム	-----	シーケンスNo.n アイテム
----------	----------------	-------	----------------

SITO SIT1 SITn

グループ	アイテム	アイテム	-----	アイテム
長さ	パケット0	パケット1		パケットK

アイテム番号	アイテム長さ	データ(テキストデータ)
--------	--------	--------------

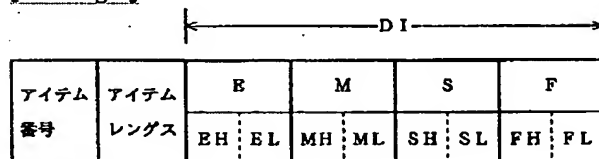
INo. IL DI

**[Drawing 3]**

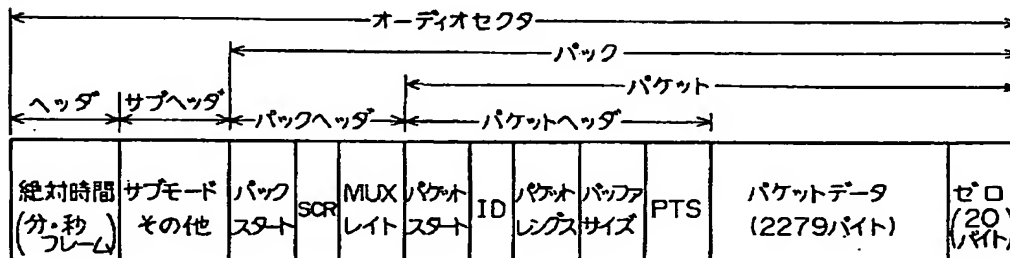
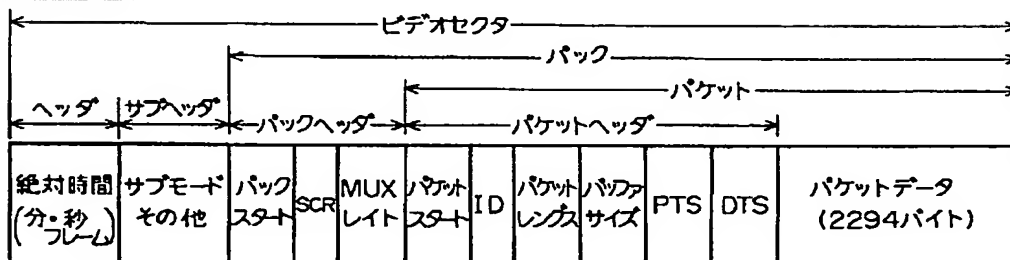
	項目番号	内 容
—	0 ~ 7	(ディスクアイテム)
必須	8	曲のISRCコード
必須	9	曲名
任意	10	曲名(並べ替え用)
必須	11	演奏者名
任意	12	演奏者名(並べ替え用)
必須	13	作詞者名
必須	14	作曲者名
任意	15	編曲者名
任意	16	原演奏者名
任意	17	歌詞用ヘッダ
任意	18	歌詞
任意	19	カラオケの音程
任意	20	原曲の音程
任意	21	曲内容の詳細
任意	22 ~ 31	メーカー定義項
任意	32 ~ 63	リザーブエリア

S I T i シーケンス・アイテム・テーブル

[Drawing 5]



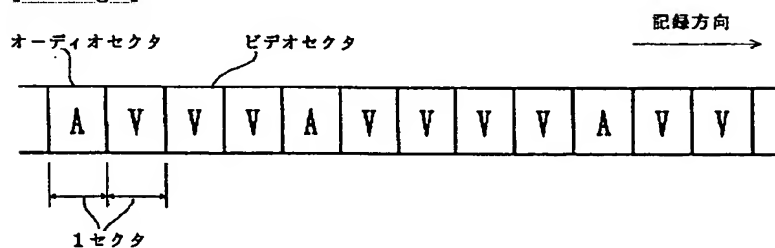
[Drawing 4]



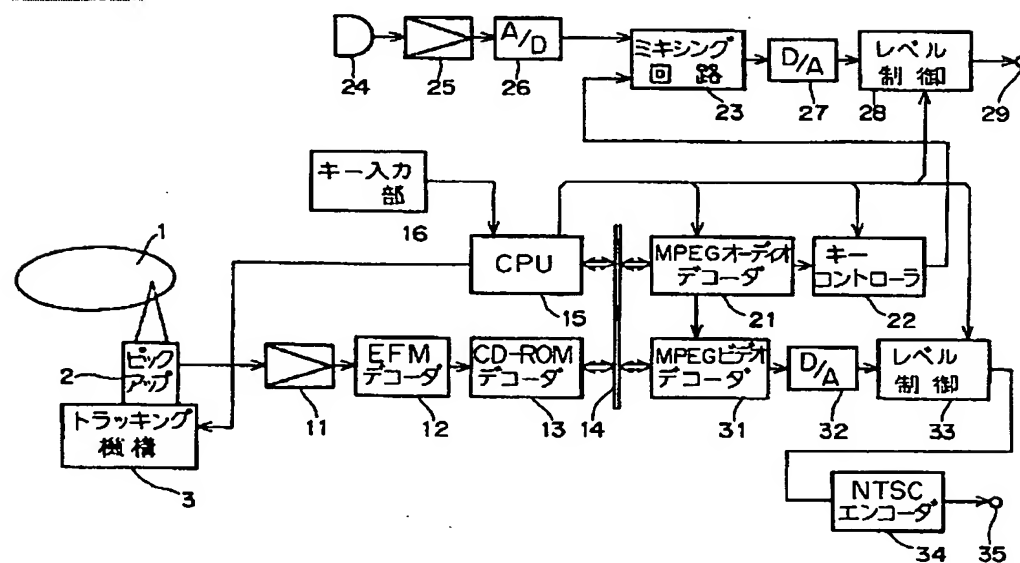
[Drawing 6]

	コード	内 容
EH	6 0 (H)	サビポイント
	6 1 (H) ~ 6 F (H)	n-コーラスポイント
EL	3 0 (H)	終了 (オフ)
	3 1 (H)	フェードアウト (A+V)
	3 2 (H)	フェードアウト (A)
	3 3 (H)	フェードアウト (V)
	3 8 (H)	開始 (オン)
	3 9 (H)	フェードイン (A+V)
	3 A (H)	フェードイン (A)
	3 B (H)	フェードイン (V)

[Drawing 8]



[Drawing 7]



[Translation done.]

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## CORRECTION OR AMENDMENT

[Kind of official gazette] Printing of amendment by the convention of 2 of Article 17 of Patent Law  
 [Section partition] The 3rd partition of the 7th section  
 [Publication date] April 20, Heisei 13 (2001. 4.20)

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 [Date of Publication] October 27, Heisei 7 (1995. 10.27)  
 [Annual volume number] Open patent official report 7-2841  
 [Application number] Japanese Patent Application No. 6-93142  
 [The 7th edition of International Patent Classification]

H04N 5/92  
 G11B 20/10  
 20/12 102  
 103  
 27/10  
 H04N 5/91

[FI]

H04N 5/92 Z  
 G11B 20/10 B  
 20/12 102  
 103  
 27/10 A  
 H04N 5/91 R

[Procedure revision]

[Filing Date] April 7, Heisei 12 (2000. 4.7)

[Procedure amendment 1]

[Document to be Amended] Specification

[Item(s) to be Amended] The name of invention

[Method of Amendment] Modification

[Proposed Amendment]

[Title of the Invention] A record medium, the record approach, and a recording device

[Procedure amendment 2]

[Document to be Amended] Specification

[Item(s) to be Amended] Claim

[Method of Amendment] Modification

[Proposed Amendment]

[Claim(s)]

[Claim 1] In the record medium with which the 1st image data used as the criteria by which compression coding was carried out, the 2nd image data which is image change information before and after receiving the image data used as said criteria, and by which compression coding was carried out, and the management data which manages the record location of the partial sequence in said one continuous sequence were recorded,

The record medium characterized by recording the 1st image data used as said criteria by which compression coding was carried out on the record location of the partial sequence managed with said management data.

[Claim 2] The record location of the partial sequence in one continuous sequence managed with said management data is a record medium according to claim 1 characterized by being a starting position and a termination location.

[Claim 3] In the record approach which records the 1st image data used as the criteria by which compression coding was carried out, the 2nd image data which is image change information before and after receiving the image data used as said criteria, and by which compression coding was carried out, and the management data which manages the record location of the partial sequence in said one continuous sequence on a record medium,

The record approach characterized by recording the 1st image data used as said criteria by which compression

coding was carried out on the record location of the partial sequence managed with said management data.

[Claim 4] In the recording device which records the 1st image data used as the criteria by which compression coding was carried out, the 2nd image data which is image change information before and after receiving the image data used as said criteria, and by which compression coding was carried out, and the management data which manages the record location of the partial sequence in said one continuous sequence on a record medium, The recording device characterized by recording the 1st image data used as said criteria by which compression coding was carried out on the record location of the partial sequence managed with said management data.

[Procedure amendment 3]

[Document to be Amended] Specification

[Item(s) to be Amended] 0026

[Method of Amendment] Modification

[Proposed Amendment]

[0026] The sequence item table SIT<sub>i</sub> (i=1- (N-1)) has 64 item columns. And although there are an indispensable thing and a thing of arbitration in the item, the die length of the contents in each item column is made adjustable. Therefore, the information GL which shows the die length of the table is formed in the head of the sequence item table SIT<sub>i</sub>. And the data of each item are called an item packet and each item packet becomes each item number (item number) INo. from Information IL and the contents DI of the item of the die length of the item (text data).

[Procedure amendment 4]

[Document to be Amended] Specification

[Item(s) to be Amended] 0050

[Method of Amendment] Modification

[Proposed Amendment]

[0050] In a regenerative apparatus, the rust point, n-chorus point, the interlude point, etc. can be discriminated from the high order bit EH of the event data E which are 1 byte of the head of a break and every 8 bytes of its data at a time about the data DI of the item number 22 at 8 bytes, and it can recognize what kind of control the point performs from lower bit EL of the event data E which are the following 1 byte. And the location of the point concerned can be known as a hour entry by 8th cutting tool MH-floor line from the 3rd cutting tool of every 8 bytes of data.

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[Translation done.]